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THE ODONATA OF THE PRAIRIE PROVINCES OF CANADA.

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With the exception of the short lists of captures in the Entomological Record, published in the Annual Reports of the Entomological Society of Ontario, and a few other isolated records, no information appears to be extant on the Odonata of the vast territory between Ontario and British Columbia. Before the section on the Odonata of the new Catalogue of Canadian Insects is issued, it seems, therefore, desirable to place on record in detailed form all the information we have been able to obtain on the distribution of the dragonflies of this region.

The source of this information is mainly to be found in the collections made by Messrs. J. B. Wallis, N. Criddle, T. N. Willing and N. B. Sanson, and to these gentlemen the writer wishes to express his sincere thanks for the privilege he has enjoyed of retaining specimens for study for an indefinite length of time, or permanently for his collection. The list is of a preliminary nature, and no doubt many species will be added to it in the future.

In looking over almost any collection of dragonflies from the prairie country one is apt to be struck with the large preponderance in individuals of the genera *Lestes*, *Sympetrum*, *Enallagma* and *Æshna*. These genera are also best represented in number of species, *Leucorrhinia* coming fifth. The latter genus is probably nowhere better developed in North America than here. There are doubtless also more species of *Somatochlora* from this region than appear in the present list, particularly in the less explored northern parts. Apart from this genus, the *Corduliinæ* are apparently poorly developed. The absence of *Agrioninæ* (*Calopteryginæ* Auct.) and *Cordulegasterinæ* is probably also due to insufficient exploration. The occurrence of two species of the genus *Coenagrion* (*Agrion* Auct.) is of much interest, one of the species being almost identical with the Palæarctic *C. lunulatum*. Finally, attention may be drawn to the fact that if we include *Æshna cærulea septentrionalis*, which has been

taken at Fort Resolution, Great Slave Lake, and doubtless occurs also in Northern Saskatchewan and Alberta, the list includes all the species of dragonflies that are common to the Palæarctic and Nearctic Regions, except the essentially tropical *Fantala flavescens*. These species are *Enallagma cyathigerum*, *Anax junius*, *Æshna cærulea*, *Æshna iuncea*, *Æshna palmata*, *Sympetrum scoticum* and *Libellula quadrimaculata*. The only genera not represented in the Palæarctic region are *Argia*, *Amphiagrion* and *Tetragoneuria*.

In the following list the names of the collectors, Messrs. Wallis, Criddle, Willing, Sanson and the late Dr. Fletcher, are abbreviated: Ws, C, Wg, S and F, respectively.

LIST.

1. *Lestes congener* Hagen.

MANITOBA.—Aweme, Aug. 29, 1907, 1 ♂; July 10, 1909, 1 ♀ (C). Westbourne, July 27, 1908, 3 ♀s; Aug. 1, 1908, 1 ♂; Aug. 20, 1908, 2 ♂s, 1 ♀; Aug. 26, 1908, 2 ♂s, 2 ♀s (Ws).

This species ranges across the continent, and is apparently most abundant in the Canadian Zone.

2. *Lestes unguiculatus* Hagen.

MANITOBA.—Aweme, Aug. 5, 6, 1907, 2 ♂s; July 10, 1909, 1 ♀ (C). Westbourne, July 27, 1908, 2 ♂s, one teneral; July 29, 2 ♂s, 1 ♀, incl. pair in cop.; Aug. 10, 14, 2 ♂s (Ws). Winnipeg, July 9, 1908, 2 ♂s, 1 ♀ (Ws).

SASKATCHEWAN.—Regina, 3 ♀s (Wg); Aug. 7, 1903, 2 ♂s (F). Goose Lake, July 20, 1907, 1 ♂, 2 ♀s, teneral (Wg). Davidson, Aug. 21, 1907, 1 ♀ (Wg). Radisson, July 29, 1907, 2 ♂s, 2 ♀s (Wg, F). Lumsden, Sept. 10, 1906, 1 ♂ (W. J. Alexander).

ALBERTA.—Near Waterton Lake, Aug. 5, 1908, 1 ♂; Aug. 10, 1908, 1 ♂, 2 ♀s (E. V. Cowdry).

A transcontinental form, inhabiting chiefly the Transition and Upper Austral Zones.

3. *Lestes uncatulus* Kirby.

MANITOBA.—Aweme, Aug. 18, 30, 1907, 2 ♀s (C). Westbourne, July 27, 1908, 2 ♂s, 2 ♀s, incl. pair in cop.; July 29, 1908, 1 ♂; Aug. 10, 1908, 1 ♂ (Ws). Winnipeg, July 24, 1908, 1 ♂, 1 ♀ (Ws).

SASKATCHEWAN.—Regina, July 17, 1907, 1 ♂, 1 ♀ (F); June 19, 1908, 1 ♀ (Wg). Goose Lake, July 19, 20, 1907, 3 ♂s, 5 ♀s (F).

Another transcontinental species. Very common on the Canadian prairies.

4. *Lestes disjunctus* Selys.

MANITOBA.—Aweme, Aug. 5, 1905, 1 ♂ (C). Westbourne, July 27, 1908, 6 ♂s; July 29, 1908, 1 ♂, 2 ♀s; Aug. 10, 1908, 1 ♂; Aug. 29, 1908, 1 ♀ (W). Winnipeg, July 4, 1908, 4 ♂s, 2 ♀s (Ws).

SASKATCHEWAN.—Regina, July 17, 1907, 1 ♀ (F), 1 ♀ (Wg). Duck Lake, July 22, 1907, 10 ♂s, 9 ♀s (F, Wg).

ALBERTA.—Banff, July 11, 18, 1908, 3 ♀s (S).

This is probably the commonest Canadian *Lestes*, and like the other species listed here, is widely distributed, occurring from Nova Scotia to British Columbia.

5. *Argia vivida* Hagen.

ALBERTA.—Banff, swamp off Hot Springs Road, June 21, 1908, 1 ♂, teneral (S).

This species has already been reported from this locality and from Glacier, B. C., by Osburn (Ent. News, XVI, 1905, p. 187). It probably does not belong to the prairie fauna.

6. *Nehalennia irene* Hagen.

MANITOBA.—Aweme, July 25, 1908, 2 ♀s; July 4, 1909, 1 ♀ (C). Westbourne, July 27, 29, 1908, 1 ♂, 2 ♀s (Ws). Winnipeg, July 7, 1908, 1 ♂, 1 ♀ (W). Winnipeg Beach, Lake Winnipeg, June 19, 1909, 3 ♂s, 4 ♀s (Ws).

These are the most westerly records for this species in Canada.

7. *Amphiagrion saucium* Burm.

MANITOBA.—Aweme, June, 1911, 1 ♀, teneral (E. Criddle).

This species is known also from Quebec, Ontario and British Columbia, but appears to be very local in Canada.

8. *Coenagrion resolutum* Hagen. (Pl. IX, figs. 1, 1a.)

Though the males of this species are readily distinguished by the peculiar form of the abdominal appendages, it may be worth while to record a description of the colour-pattern of both sexes, as I have

before me some excellently preserved alcoholic specimens, received from Mr. T. N. Willing, of Regina, Sask.

Male: Head bronze-black above, postocular spots blue, posterior margin of occiput yellowish green. Eyes pale green, dark olivaceous above. Face, including a broad front margin of the frons, pale green or greenish yellow, except the nasus, which is bronze-black. Pronotum bronze-black, the anterior and lateral lobes, a marginal line along the sides of the posterior lobe and a spot on each side mesad of the lateral lobes, black. Thorax bronze-black, the humeral bands pale green to bluish green, slightly curved, rounded at both ends, widest in front, more or less constricted towards the posterior end. Pleura pale bluish to yellowish green, becoming more yellowish beneath. Abdomen pale blue above, yellowish green beneath, marked with bronze-black as follows: Segs. 1-3 as in fig. 1; slightly more than apical half of 4 and 5; 6 and 7, except a very narrow interrupted basal line; 10 dorsally, except a greenish median spot at the posterior margin. The superior appendages black, their slender inferior processes and the inferior appendages black-tipped.

Female: Colour variable, the pale markings being sometimes blue above, as in the male, but varying to wholly greenish yellow. Markings of head and thorax similar to those of the male, but the postocular spots are larger, and the posterior pale marginal line of the pronotum is entire or barely interrupted. Abdominal segments marked above with dark bronze as follows: Segs. 1-3 as in figure 1a; 4-6 except a basal interrupted line; 7 except a basal interrupted line and a bluish apical line; 8 and 9 except a bluish apical band; 10 with a subtriangular dorsal spot.

MANITOBA.—Winnipeg, July 7, 1908, 1 ♂ (Ws). Winnipeg Beach, Lake Winnipeg, June 19, 1909, 12 ♂s, 1 ♀ (Ws).

SASKATCHEWAN.—(Locality not given.) June 20, 1908, 5 ♂s, 3 ♀s.

A widely-distributed boreal species, occurring locally also in the Transition Zone.

9. *Coenagrion angulatum*, sp. nov. (Pl. IX, figs. 2, 2a, 2b, 2c.)

Closely allied to *C. lunulatum*, from which it differs somewhat in the form of the abdominal appendages of the male.

The pale terminal tubercle of the superior appendages is shorter and more broadly rounded, and the angle between it and the inferior

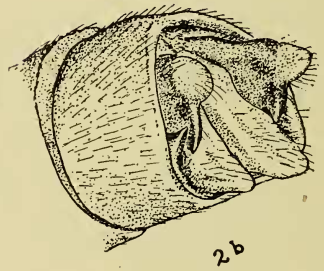
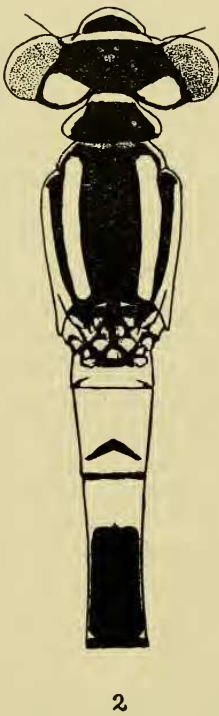
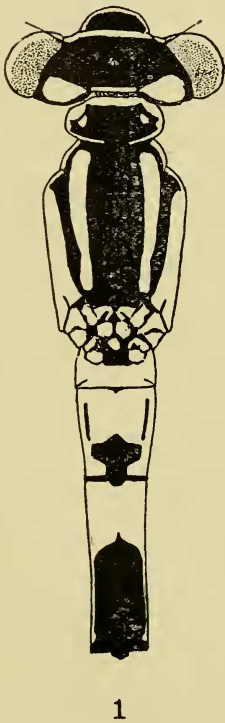
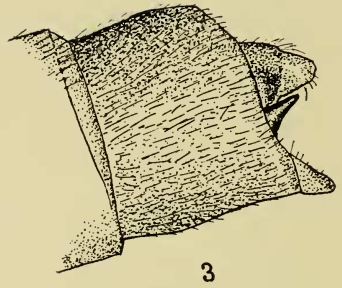
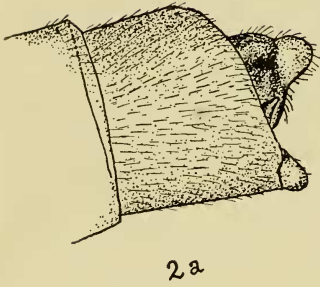
process is shallower ; the apices of the inferior appendage are much smaller and do not project beyond the latter process, as in *lunulatum* ; while the inferior process of the inferior appendage is shorter, broader and blunter than in *lunulatum*.

Male: Azure blue above, greenish yellow beneath. Head black above, postocular spots blue, rather large ; eyes pale green, dark olivaceous dorsally. Face pale green ; nasus and a line between rhinarium and labrum black, middle lobe of labrum pale bluish. Pronotum black, anterior lobe blue, lateral lobes pale yellowish green. Thorax bronze-black, the blue humeral bands about as broad as the black bands laterad of them, straight or but feebly curved, the margins subparallel ; pleura blue, fading beneath into pale yellowish. Legs pale yellow, outer surfaces of femora and inner surfaces of tibiæ and whole of tarsi black. Abdomen blue above, yellowish beneath, marked above with bronze-black as follows : Seg. 1 with a transverse basal spot ; 2 with a narrow transverse angular spot and an apical transverse band ; 3 except the basal two-sevenths ; 4 except the basal fifth ; 5 except a pair of spots on the basal sixth ; 6 and 7 except a narrow interrupted basal line ; dorsum of 10, or a laterally constricted spot upon it. Superior appendages black, with a pale terminal tubercle, inferior appendages pale, the sides and apices black.

The female resembles that of *C. resolutum*, differing as follows : The posterior margin of the pronotum is slightly trilobate, the middle portion arcuate as seen from behind (not at all trilobate in *resolutum*), the pale posterior margin is narrower and sometimes confined to this middle lobe ; the thoracic bands, as in the male, are straighter, somewhat broader and the sides more nearly parallel. The abdomen is marked similarly to that of *C. resolutum*, but the dark areas are somewhat more extensive on segs. 1-3, and on 7 there is a basal interrupted pale band, which is absent in the latter species. The dorsum of 10 is entirely dark, except a narrow posterior marginal line.

The two alcoholic specimens which I have are pale yellowish, with a reddish tinge on the thorax, the transverse bands on 7 and 8 faintly bluish.

Length of body, ♂, 29-31 mm., ♀, 28-30 mm.; abdomen, ♂, 22-23.5 mm., ♀, 22-23.5 mm.; hind wing, ♂, 16-17 mm., ♀, 18-18.7 mm.



THE ODONATA OF WESTERN CANADA

Types.—♂, Carnduff, Sask., July 16, 1900 (Wg).

Cotypes: MANITOBA.—Aweme, July 4, 1905, 1 ♀ (C).
Winnipeg Beach, Lake Winnipeg, June 19, 1909, 4 ♂s (Ws).

SASKATCHEWAN.—Prince Albert, June 18, 1905, 1 ♀. Also
1 ♂, 3 ♀s from Saskatchewan without further data (Wg).

To Mr. Kenneth J. Morton is due the credit of first recognizing
the close relationship between this species and *C. lunulatum*.

Can this be the *Agrion interrogatum* Selys, described from the
female only, from Saskatchewan? (Bull. Acad. Belg. (2) 41, p.
1254, 1876).

10. *Enallagma cyathigerum* Charpentier.

SASKATCHEWAN.—Prince Albert, June 18, 1905, 1 ♂ (Wg).
Kinistino, July 22, 1 ♂ (F). Duck Lake, July 22, 1907, 6 ♂s
(Wg, F).

ALBERTA.—Lethbridge, July 5, 9, 1907, 2 ♀s (Ws). Calgary,
July 10, 1903 (Wg). Near Waterton Lake, Aug. 10, 1908, 1 ♂
(Cowdry).

I am unable to distinguish the females of this species from the
following, and therefore have not included them in the above list.
Females probably of both species have been received from the fol-
lowing localities: Aweme, Man., July 1, 1909, 1 ♀ (C). Winni-
peg Beach, Man., June 19, 1909, 5 ♀s (Ws). Abernethy, Sask.,
June 27, 1903, 1 ♀ (Wg). Duck Lake, July 22, 1907, 18 ♀s (Wg,
F). Lethbridge, Alta., July 5, 9, 2 ♀s (Ws). Banff, Alta., June 17,
1908, 2 ♀s (S). Near Waterton Lake, Aug. 5, 1908, 1 ♀ (Cowdry).

This circumpolar species doubtless occurs also in Manitoba, as I
have taken it in Northwestern Ontario (Nipigon).

11. *Enallagma calverti* Morse.

MANITOBA.—Aweme, June 24, 1909, 1 ♂; July 4, 1909, 2
♂s (C). Winnipeg Beach, Lake Winnipeg, June 19, 1909, 2 ♂s (Ws).

SASKATCHEWAN.—Prince Albert, June 19, 1905, 1 ♂ (F).
Duck Lake, July 22, 1907, 2 ♂s (Wg, F).

ALBERTA.—Medicine Hat, June 29, 1904, 1 ♂ (Wg).
Lethbridge, July 5, 9, 2 ♂s (Ws). Banff, June 17, 1908, 1 ♂ (S).
Laggan, 1 ♂ (J. E. Bean).

The females, as stated above, are listed with the preceding
species, from which they are apparently inseparable.

These two closely-allied boreal species seem to be the commonest *Enallagma*s of the prairies. I believe that they are one and the same species, as I have seen males which could be placed about equally well in either species.

12. *Enallagma hageni* Walsh.

MANITOBA.—Westbourne, July 27, 1908, 2 ♂s, 1 ♀ (Ws).

SASKATCHEWAN.—Regina, July 17, 1907, 1 ♀? (F).

Apparently rarer than in Ontario, where it is by far the commonest *Enallagma*, except, perhaps, in the far north.

The record from Regina is quite doubtful, as the females of this species are difficult to separate with certainty from certain allied species.

13. *Enallagma ebrium* Hagen.

MANITOBA.—Westbourne, July 27, 29, 1908, 3 ♂s, 5 ♀s (Ws). Winnipeg, July 7, 1908, 1 ♀; July 24, 1908, 2 ♂s (Ws).

SASKATCHEWAN.—Carnduff, July 16, 1900, 2 ♂s (Wg).

This species is not known in Canada west of Saskatchewan.

14. *Enallagma civile* Hagen.

MANITOBA.—Winnipeg, July 9, 1908, 1 ♂; July 28, 1908, 1 ♀ (Ws).

This is the northern limit of this species as far as known.

15. *Ophiogomphus rupinsulensis* Walsh.

MANITOBA.—Aweme, June 30, 1907, 2 ♂s; July 19, 1910, 2 ♀s (C).

SASKATCHEWAN.—Saskatoon, July, 1907, 1 ♂ (Wg).

The dark markings of the thorax are less distinct than in specimens from Algonquin Park, Ont.

The females were quoted doubtfully in the Entomological Record for 1911 as *O. severus* Hag.

16. *Ophiogomphus severus* Hagen.

ALBERTA.—Lethbridge, July 8, 1909, 1 ♂ (Ws).

This specimen was compared with specimens of *O. severus* in the Hagen collection (Museum of Comparative Zoology, Cambridge, Mass.).

17. *Gomphus externus* Hagen.

MANITOBA.—Aweme, June 30, 1907, 1 ♀; July 22, 1909, 1 ♂; July 9, 1910, 1 ♂ (C, Ws). Winnipeg, June 25, 1910, 1 ♂, 1 ♀ (C).